

# PLANTS POISONOUS to HORSES and LIVESTOCK



## **A GUIDE TO TOXIC PLANTS COMMONLY FOUND IN LINCOLN COUNTY**

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Lincoln County Noxious Weed Control Board  
P.O. Box 241, Davenport, WA 99122  
Located at 405 Ross St. Davenport  
**Office:** 509.725.3646 **Fax:** 509.725.1332  
[www.co.lincoln.wa.us/weedboard](http://www.co.lincoln.wa.us/weedboard)

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Plants *highlighted* in **green** are **noxious** and on the Lincoln County Noxious Weed List.

## **PLANTS THAT ARE TOXIC TO HORSES AND LIVESTOCK**

The following is a guide of several plants that can be found growing in Lincoln County that are poisonous to horses and livestock. To protect your animals from poisoning, learn to identify the poisonous plants that grow in your pasture or rangeland.

Prevention is the best medicine. Ensure that your horses and livestock have adequate hay and/or healthy pasture to graze. Provide adequate water and avoid overgrazing.

Most poisonous plants have an unpleasant taste that animals avoid if they have anything else to eat. However, if they have no choice but to eat these plants, they might develop a taste for them. Horses will avoid weeds in pastures where there is abundant grass forage available. Problems generally arise when pastures have been overgrazed and horses have no option but to seek out alternate food sources. It's important for horse owners to know which plants to avoid and how to manage those already in our pastures.

Horses, as with most livestock, devote most of their time to eating and are designed to graze for the majority of the day. Horses do not have the intellect to stop eating when they have met their nutritional requirements and will continue to eat even if it causes digestive upset or laminitis. Horses will normally graze between five and ten hours a day, but if the quality of the pasture is low, they will often graze much longer.

Horses are also very selective grazers and have top and bottom teeth, unlike cattle, sheep, and goats which have bottom teeth only and graze in a very different fashion. Horses tend to pull grasses out of the ground and will graze down portions of the pasture while leaving other areas tall and overgrown. These bare spots allow areas for weeds to colonize, making it more likely that horses will be in contact with toxic plants.

Herbicides are derivatives of salts, which often increase the palatability of plants, along with its sugar content. Be cautious when grazing animals after herbicide applications. Avoid grazing treated areas until plants have dried. You should wait until plants are dead before introducing animals to the site.

Watch for unusual behavior in your animals. If you suspect a poisoning, consult a veterinarian as soon as possible. Be sure to collect samples of the plants you suspect caused the poisoning for positive identification.

The signs listed in the following pages are those that are most likely to be observed. However, not all signs will be seen in all cases. Signs of poisoning may vary greatly, depending on the dosage and the time taken to consume the dose. Also, individual animals or species respond differently to poisons.

## If you believe that your animal may have been exposed to toxic plants...

- **1. Call your vet.** Prompt, appropriate treatment may prevent fatalities or chronic effects when animals have been exposed to toxic plants. Be sure to mention the name of the toxic plant species that your animal may have been exposed to. On the following pages, you will find information to identify several toxic plants, symptoms, and the known toxins the plant produces.
- **2. While you wait, isolate the affected animals.** Be sure that they are in a safe, shaded place and provide them with plenty of clean water and hay that does not contain toxic plants. Avoid stressing the animals.
- **3. If possible, collect a sample of the toxic plant while wearing gloves and protective clothing.** Put plant material into a sealed plastic bag with a dry paper towel. This will be crucial to helping your veterinarian identify the plant and choose appropriate treatments.
- **4. Make a plan to remove toxic plants from your pasture or to purchase new hay.** Take note of pastures or hay that may contain toxic plants and, using the Integrated Pest Management (IPM) tools on the following pages, develop a plan to prevent future exposure.
- **5. Prevent animals from grazing on dead or wilting plants as they may still be toxic.** Plants that have been treated with an herbicide or hand-pulled may be more enticing to horses and other livestock due to biochemical changes in the plant. Remove the plants, throw in the trash (do not compost), or remove the livestock.

## Tips for Choosing Suitable Hay

- **Know your hay vendor or hay grower.** When you purchase hay from a reliable grower or vendor, you are much more likely to receive the quality of hay you want. Additionally, if there are problems with the hay, it is easier to resolve them when you know the vendor/grower and are aware of policies and business practices. If you are buying directly from a hay grower, discuss your needs and, if possible, view their bales beforehand to ensure that they are clean of weeds and toxic plants.
- **Inspect your hay.** Inspect hay prior to purchase or, if delivered, prior to unloading. Break open several bales to inspect the hay for toxic plant material and for quality. In grass hay, dried broadleaf plants are often easy to see. Be sure to check for spiny plants and debris as well. As a reminder, don't buy bales that have a gray tint or that are dusty when pulled apart as dust is often actually mold spores.

**In Washington state, it is the buyer's responsibility to thoroughly inspect hay and ensure that it meets the needs of their livestock.** It is more difficult to address bad quality hay after it has been purchased. In some situations, a buyer can pursue legal action, however, these cases are difficult to prove and often not worth the expense. It is important to note that "bad quality" hay is often just hay grown for non-livestock uses. As a livestock owner, you must be aware of your needs for the hay and choose hay that meets these needs. If you are having trouble identifying a plant in your hay, contact your local WSU Extension office or the Washington Animal Disease Diagnostic Lab (WADDL) <https://waddl.vetmed.wsu.edu/>.

- **Remember that poor pasture condition or, at times, unusual weather or climate events, often lead to toxic events.** Healthy pastures with strong populations of good forage are the first and best line of defense. Maintaining good forage should be your primary goal.
- **Pay attention to stocking rate and length of grazing times.** If grazing animals consistently exceed appropriate numbers, pasture condition will decline, regardless of IPM methods. Placement of water tanks and salt, cross-fencing, rotational grazing, manure management, and surface water management and protection are all practices that help achieve and maintain healthy pastures.

## These Plants Have a High-Toxicity Rating:

### COAST FIDDLENECK (*Amsinckia intermedia*)

**Toxicity rating:** High

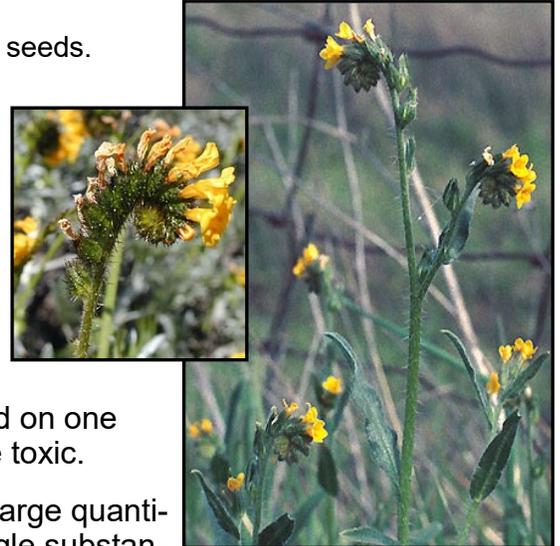
**Toxins:** Pyrrolizidine alkaloids. All parts of plant, especially the seeds.

**Animals affected:** Cattle, horses and swine.

**Signs:** A variety of nervous signs; derangement, mania, drowsiness, yawning, walking aimlessly, liver damage, weight loss, depression, incoordination and death.

**Description of plant:** An erect annual weed with bristly or hairy stems, 1 to 2 1/2 feet tall with alternate leaves that are hairy and ovate. The leaves of a newly emerging plant are covered with little “blisters.” Yellow flowers are arranged on one side of a “fiddleneck- shaped” axis. All parts of this plant are toxic.

Fiddleneck poisoning damages the liver when it is eaten in large quantities. Although it is possible to develop symptoms from a single substantial serving, in most cases this occurs over several feedings. In a significant number of animals, the signs of liver damage take several months after exposure to develop. Fortunately, the plant is generally avoided by horses as they are unpalatable. This makes poisonings rare, only occurring during drought conditions or when feed becomes contaminated.



### COMMON COCKLEBUR (*Xanthium strumarium*)

**Toxicity rating:** High

**Toxins:** Glycoside, carboxyatractyloside, sesquiterpene lactones. The seeds and seedlings contain the highest quantity of toxins; yet the whole plant can be considered toxic. The seed burs can cause mechanical damage.

**Animals affected:** All animals: cattle, swine, sheep and poultry are more at risk than horses or pets.

**Signs:** Symptoms appear within a few hours. Gastrointestinal irritation, weakness, breathing difficulty, hypoglycemia, cardiac abnormalities, death. Liver damage may result from toxins, and death is likely if 0.75% of body weight is ingested.

**Description of plant:** An annual that grows 2-4 ft. tall with an erect stem that is branched, ridged, spotted and rough. Leaves are triangular or heart-shaped and are rough on both sides. Flowers are small and the fruit is a hard, oval, prickly bur that contains 2 brown seeds.



## DEATH CAMAS (*Zigadenus venenosus*)

**Toxicity rating:** High

**Toxins:** Steroidal, glycosidal alkaloids.

**Animals affected:** All animals are susceptible.

**Signs:** Excessive, foamy salivation, weakness, respiratory difficulty, nausea, vomiting in ruminants, convulsions, coma, death. Respiratory problems occur in sheep after eating 1/2 to 2 pounds. The bulbs are less accessible to livestock, but they are reported to cause severe illness and death in humans who confuse it for wild onion. Small doses can lower milk production and weight gain. Death can occur within days after ingestion of 0.5-2% of body weight.

**Description of plant:** A native perennial with scaly, underground bulbs that emerge in early spring. Plants have 5-6 thick, basal leaves with a grass-like appearance. Plants can reach 2 feet tall and have white to yellow flowers. All parts of the plant are toxic. It is most often found on open plains and hillsides along with larkspur. Death camas is wide spread throughout Washington state.



## LOW LARKSPUR (*Delphinium nuttallianum*)

**Toxicity:** High

**Toxins** Delphinine alkaloids, cardiac glycosides. All parts of the plant are toxic; new growth and seeds contain the highest concentration of toxins. In most cases, pre-bloom tastes the best to animals.

**Animals affected:** Primarily cattle; but also goats, sheep and horses.

**Signs:** Nervousness, weakness, salivation, nausea, bloating, rapid heart rate, death within 3-4 hrs. of the first signs. Excitement and physical exercise after ingesting large amounts can intensify all signs of poisoning. Cattle seem to be attracted to larkspur and are lethally poisoned after eating 0.7% of their body weight in an hour.

**Description of plant:** A simple, rarely branched perennial that grows up to 20 inches in height with tuberous roots. Leaves are deeply divided into finger-like lobes. Flowers are blue-purple or sometimes pale blue or white with prominent spurs.



## PIGWEEED (*Amaranthus retroflexus*)

**Toxicity rating:** High

**Toxins:** Nephrotoxin that causes kidney failure; soluble oxalates and is capable of accumulating nitrates.

**Animals affected:** Cattle and swine; goats and sheep

**Signs:** Breathing problems, trembling, weakness, abortions, coma, death. Animals need to consume pigweed in fairly significant quantities over several days before kidney signs appear.

**Description of plant:** A large, coarse, annual with red stems and oval, wavy-margined, alternate leaves. The green, inconspicuous flowers are in short, compact clusters and green spines. A single plant can produce 35,000 seeds, so it takes hold rapidly and is difficult to eradicate. Multiple generations can occur in one growing season. It is also drought-tolerant.



Pigweed is most toxic immediately before flowering or when stressed. Toxicity may increase in arid areas or with drought.

## POISON HEMLOCK (*Conium maculatum*) Class C noxious weed

**Toxicity rating:** High

**Toxins:** Conine and gamma-conicine. All parts of the plant are poisonous; the toxicity increases throughout the growing season; the roots become toxic only later in the year.

**Animals affected:** All animals

**Signs:** Very often the first sign may be a dead animal. Nervousness, trembling, dilated pupils, frothing at the mouth, incoordination, depression, weak or rapid pulse, coma, death. Birth defects occur when it is eaten between 40-70 days gestation in cows and 30-60 days in sheep; unknown time frame for equines. Consumption of Poison Hemlock can cause reparatory failure in less than 3 hours. Animals show signs within 2 hours. A lethal dose for a horse is 4-5 pounds of leaves; cattle may be poisoned with 1-2 pounds and sheep with a half-pound or less.

**Description of plant:** A biennial noxious weed that grows 3-8 ft. tall and has a smooth, purple-spotted stem and triangular, finely-divided leaves. Leaves and roots have a parsnip-like odor. White flowers arranged in umbrella-like clusters open in early summer.



## PINE NEEDLES (*Pinus ponderosa*)

**Toxicity rating:** High

**Toxins:** Isocupressic acid. Twenty species of *Pinus*, *Abies*, *Pseudo* & *Suga*, *Juniperus*, *Picea* and *Cupressus* have been shown to contain the toxin, some more palatable than others.

**Animals affected:** Primarily cattle.

**Signs:** Abortion, indigestion. High doses may develop renal and neurological disease. Abortions generally occur between 48 hours and 2 weeks after exposure to pine needles. Dosage is highly variable. Some cows are sensitive, and a small amount of needles may induce an abortion.

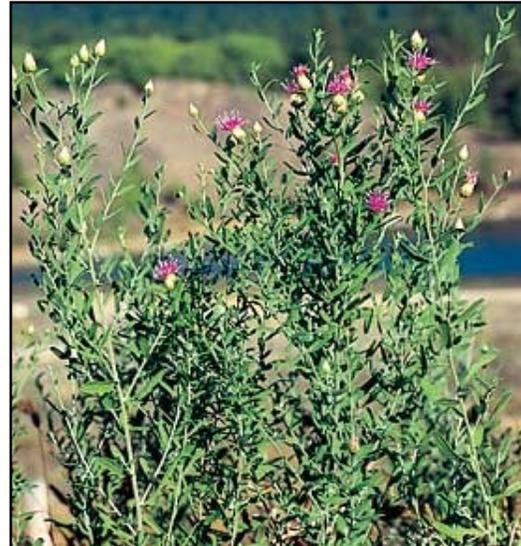


## These two plants only affect horses:



### YELLOW STARTHISTLE

(*Centaurea solstitialis*)  
Class B noxious weed



### RUSSIAN KNAPWEED

(*Acroptilon repens*)  
Class B noxious weed

**Russian Knapweed** and **Yellow Starthistle** can cause a neurological disease called nigropallidal encephalomalacia, better known as “**Chewing Disease.**” It affects the muscle that allows the horse to swallow food; therefore, **they die of starvation.** The effects of the toxins are cumulative and horses will not eat these plants unless it is the only forage available.

**Both of these weeds are on the Lincoln County Noxious Weed List.**

## WESTERN WATERHEMLOCK (*Cicuta douglasii*)

**Toxicity rating:** High

**Animals affected:** All animals, including humans

**Signs:** Nervousness, breathing difficulties, tremors, collapse, sudden death. As little as 8 ounces can kill a horse. Signs will develop within minutes of ingestion. Death can occur in 30 minutes. If the animal survives 4 to 6 hours, they may recover but suffer permanent damage to the heart.

**Description of plant:** A perennial native plant with erect stems. It grows to 7 feet tall. Stems are smooth, purple-striped and hollow. A yellow liquid exudes from cut stems and roots. Leaves are toothed, and white flowers bloom in late spring or early summer in umbrella-like clusters. It grows primarily along stream banks and irrigation canals, but it also likes pastures or untilled areas.



Even the water it grows in is toxic!

## LUPINE Species (*Lupinus*)

**Toxicity rating:** High

**Toxins:** Poisonous alkaloids; D-lupinine. All parts of the plant are toxic, especially pods with seeds.

**Animals affected:** All animals are susceptible, primarily sheep.

**Signs:** Spasms, cerebral excitement, breathing problems, behavioral changes, birth defects, death. Sheep seem to be the most susceptible; death can occur when they have eaten as little as 0.25% of their body weight. Cows that eat these plants in the first 40-70 days of pregnancy can have deformed calves, a condition known as crooked-calf syndrome. Current research indicates poisoning can happen longer during gestation than first thought: between 35 to 100 days of gestation. The uterus shrinks down and paralyzes movement of the fetus, not allowing it to move or grow properly. Paralysis can last from hours to days. Growth continues during paralysis in the fetal position. Severity depends on the duration of paralysis.





**Description of plant:** A perennial plant that reproduces by seed. Stems are upright and branched, often forming large, showy clumps up to 18 inches in height. Flowers can be white to purple on elongated spikes, and leaflets and stems are covered with fine hairs. Palmate leaves are composed of 6-8 leaflets.

← This cow was born with crooked-calf syndrome.

## These Plants Have a Moderate-Toxicity Rating:

### FIELD HORSETAIL/SCOURINGRUSH

(*Equisetum spp*)

**Toxicity rating:** Moderate for most animals, but **high toxicity in horses**.

**Toxins:** Thiaminase. All parts of the plant are toxic, both fresh and dried. Hay containing this weed may be more poisonous than fresh plants in the field!

**Animals affected:** Primarily horses and cattle; other animals can be affected also.

**Signs:** Weight loss, constipation, weakness, gait abnormalities, abnormal heart rate, convulsions, inability to rise, death. Horses suffer from vitamin B1 (thiamine) deficiency, causing degeneration of peripheral nerves.

**Description of plants:** A tenacious perennial plant with stiff, hollow stems that are round and jointed. Scouringrush appears in early spring as a tan shoot, developing into cane-like shoots that grow 1 to 6 feet tall. Stems have a terminal spore-producing cone on the end. Field horsetail has green shoots that bear pine needle-like branches which look like a horse's tail.



## HOUNDSTONGUE (*Cynoglossum officinale*) Class B noxious weed

**Toxicity rating:** Moderate

**Toxins:** Pyrrolizidine alkaloids. All parts of the plant are toxic, most poisonous in the rosette stage.

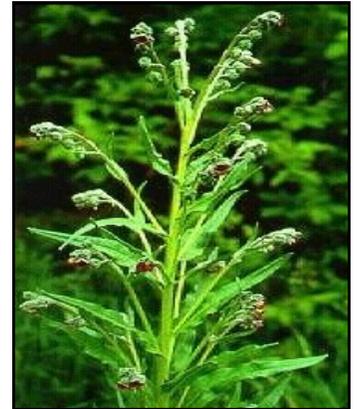
**Animals affected:** Horses and cattle are particularly susceptible to poisoning by houndstongue while sheep seem to be tolerant. However, burs lodge in the sheep **wool** and greatly reduce the value of the clip.

**Signs:** Weight loss, jaundice, depression, diarrhea, photosensitivity of non-pigmented skin. The alkaloids have a cumulative effect on the liver and can induce fatal poisoning once 5-10% of an animal's body weight has been consumed and up to six months after ingestion.

**Description of plant:** A biennial growing 1 to 4 feet tall and reproducing by seed. The heavy "tongue-shaped" leaves are alternate up the stem and are about 4-12 inches long. The leaves are hairy and rough and feel like a dog's tongue. The flowers are reddish to purple and appear at the end of the stem. Seed pods are covered with barbs that enable them to stick to animals, clothing, etc.

**Noxious:** Houndstongue is an aggressive weed which was introduced from Europe. It is a very fast-spreading and a hard-to-control weed. It spreads rapidly by means of burs which attach to people, domestic pets and wildlife.

Houndstongue burs stick like velcro on this cow, spreading seed through the pasture.



## LEAFY SPURGE (*Euphorbia esula*) Class B noxious weed

**Toxicity rating:** Moderate

**Toxins:** White, latex sap which has co-carcinogenic factors that can increase the cancer-causing properties of other substances. All parts of the plant are toxic.

**Animals affected:** Other than goats and sheep, any animal consuming spurge exclusively, or that comes into contact with the sap. Humans who come into contact with the sap can experience severe skin irritation as well as temporary blindness (seldom permanent) if the sap gets into their eyes.

**Signs:** Gastrointestinal irritation, dermal and ocular irritation, weakness. Prolonged exposure to skin (legs and head primarily) will cause irritation, redness, swelling and salivation and head shaking if the oral mucosa is affected. Blistering and open sores are possible from exposure to the sap.

**Description of plant:** A perennial **noxious** weed that grows to 3 feet tall and reproduces vigorously by rootstalks and seed. Leaves are alternate and stems are thickly clustered. Flowers are yellowish-green, small and arranged in numerous small clusters, paired with heart-shaped, green bracts.

Usually, grazing animals avoid ingesting leafy spurge, but when they do, they may suffer severe lesions in the mouth, weakness, and sometimes death. Leafy spurge is also a human health hazard. The plant produces a white latex (see picture at right) which can cause severe dermatitis in humans and animals. Upon eye contact, the latex may even cause human blindness. In addition, the latex has co-carcinogenic factors which increase the cancer-causing properties of other substances.

Milky sap has toxic properties.



## MILKWEED (*Asclepias* spp.)

**Toxicity rating:** Moderate

**Toxins:** Cardenolides and resinoids. Stems, leaves, roots and other above-ground parts of the plant are poisonous. Milkweed may cause losses at any time, but it is most dangerous during the active growing season. May require up to 2% of body weight.

**Animals affected:** Sheep and cattle, occasionally horses. Most livestock losses are a result of hungry animals being concentrated around Milkweed-infestations. Poisoning may occur if animals are fed hay containing large amounts of milkweed.

**Signs:** Depression, weakness, difficulty breathing, violent spasms, bloating, gastroenteritis. An average-size sheep which eats 30-100 grams of green leaves is likely to die of poisoning.

**Description of plant:** There are several milkweeds, but Labri-form milkweed is the most toxic. Any species of *Asclepias* must be regarded as toxic. Milkweed is a perennial that often bears blossoms and fruit at the same time. The plant can grow up to 3 feet high. Greenish-white flowers are borne in umbrella-like clusters. Leaves may be narrow or broad. The toxins are highest in the bitter, milky sap, found throughout milkweed stems and leaves, hence the vulnerability of grazing animals. Sheep, cattle and sometimes horses may be poisoned by milkweed when they eat it in bulk. These poisonings usually happen when animals are penned in corrals with nothing to eat but milkweed, which grows almost anywhere, or when they eat hay containing large amounts of milkweed.



## THESE PLANTS HAVE A LOW-TOXICITY RATING:

### BUTTERCUPS (*Ranunculus* spp.)

**Toxicity rating:** Low to Moderate

**Toxins:** Ranunculas. The juice of the entire plant contains the toxins.

**Animals affected:** All animals, primarily cattle and sheep.

**Signs:** Blisters and ulcers in the mouth. In an infested pasture, milk cows can eat enough to taint their milk.

**Description of plant:** There are several buttercups found in northwest Washington. The most common are Creeping Buttercup, Tall Buttercup and Bur Buttercup. Please refer to any of the references listed on page 16 for more information on these plants.



### DOWNY BROME (*Bromus tectorum*) Also known as "Cheatgrass"

**Toxicity rating:** Low

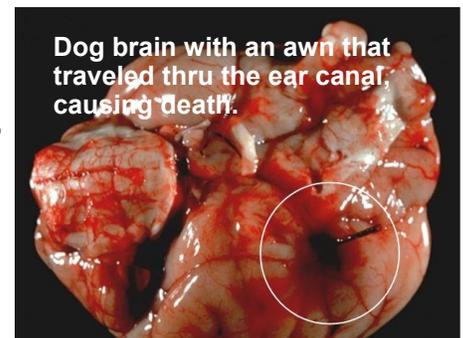
**Toxins:** Large, coarse awns cause **mechanical injury** to mouth, eyes, and nose.

**Animals affected:** Grazing animals

**Signs:** Sores and infections to mouth, throat, intestines; weight loss.

**Description of plant:** An annual growing 4- to 30-inches tall, reproduced by seed. Leaf sheaths and flat blades are densely covered with soft hair. The seed head is dense, slender, drooping and often purple with nodding spikelets. Also known as

The barbs on the awns can only go one way, and that is in. They can cause quite severe mouth ulcers in horses and cattle. The awns (florets) can migrate all the way through the ear canal to the brain of dogs and cats, as shown in the picture to the right. The awns can also cause ocular and footpad problems in small animals.



## MAYWEED CHAMOMILE (*Anthemis cotula*)

**Toxicity rating:** Low

**Toxins:** Irritant which affects the skin and mucous membranes of grazing livestock. It can add a foul taste to the milk of dairy animals.

**Animals affected:** All grazing animals

**Signs:** Skin rash, and soreness and blistering of the mouth and lips.

**Description of plant:** It is an annual, bushy-branched plant that grows from 1/2 to 2 feet tall with narrow, divided leaves. Flowers resemble those of a daisy, approximately 3/4 inch in diameter.



Animals will most likely avoid this plant because of its strong odor and bad taste. This plant is also referred to as dog fennel.

## ST. JOHNSWORT (*Hypericum perforatum*) Class C weed Also known as "Goatweed"

**Toxicity rating:** Low to moderate

**Toxins:** Hypericin. All parts of the plant are toxic.

**Animals affected:** All white-skinned, (except goats, which is debated) sheared, and young animals are the most sensitive.

**Signs:** Sunburn, skin slough, eye irritation, inflammation of non-pigmented skin. Hypericin is a pigment that when absorbed by the body and activated by sunlight can result in a condition known as photosensitivity, where **white or light-skinned animals become seriously sunburned under normal exposure to sunlight**. Animals must consume the plants for 4 to 5 days before clinical signs are noted.

**Description of plant:** A perennial noxious weed which reproduces by seeds or short runners. Stems are 1- to 3-feet high, erect with numerous branches that are rust-colored and woody at the base. Leaves are opposite, clasping the stem and oval-shaped. This plant is easily identified by the tiny, transparent dots visible in the leaves when held up to the light. Flowers are bright-yellow and have 5 petals with minute, black dots around the edges.



## **PUNCTUREVINE** (*Tribulus terrestris*) Class c noxious weed

**Toxicity rating:** Low

**Toxins:** Saponins

**Animals affected:** Cattle & sheep and other ruminants.

**Signs:** Liver disease, weight loss, neurological signs

**Description of plant:** Annual, mat-forming, trailing stems up to 5 feet long. Leaves are opposite, hairy, divided into 4 to 8 pairs of leaflets. Flower is yellow with 5 petals in leaf axils, to 1/2-inch wide. The seeds break into 5 sections with 2 to 4 seeds per capsule. Capsules have tack-like structures with 2 sharp spines, resembling the head of a goat.

Puncturevine's sharp burs are especially dangerous for live-stock. They can pierce and/or cut feet, skin, mouth, and the digestive track. Besides sharp burs, puncturevine contains toxins that cause liver damage in sheep and cattle.



## **PLANT FAMILY TO BE CAUTIOUS OF:**

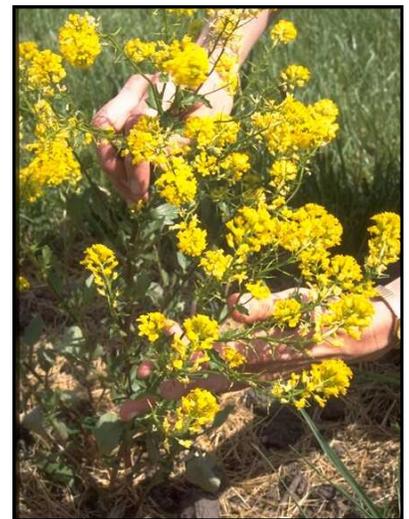
### **THE MUSTARD FAMILY:**

Consumption of mustard plants by mares has caused a condition called Congenital Hypothyroid Dysmaturity Syndrome in foals. Signs of this condition include:

1. Abnormally long pregnancy
2. Foals commonly born with facial and lower jaw deformities
3. Deformities of the limbs

This syndrome occurs most often in mares who are bred late and fed hay that is contaminated with mustard; also with mares pastured in early-spring in fields with mustard plants, like Blue Mustard, Tumble Mustard, Flixweed and Shepherd's purse.

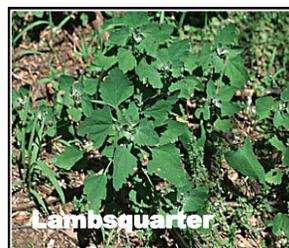
The syndrome appears to be caused by digestion of certain mustards during the last trimester of pregnancy. The chemicals are broken down into compounds that act on the thyroid gland. Make sure the hay is free of mustards, and keep mares late in pregnancy out of pastures with mustard plants.



## NITRATE-ACCUMULATING PLANTS:

- The effects of nitrate poisoning result largely from oxygen starvation or simply, suffocation.
- Plants differ in their ability to accumulate nitrate. The soil type, the availability of nitrogen present in the soil, various environmental factors and chemical or physical plant damage influence the amount of nitrate. For example, drought conditions, frost, or the treatment of nitrate-accumulating plants with 2,4-D may cause plants to accumulate excessive amounts of nitrate.

- Kochia (Class B noxious weed)
- Alfalfa
- Pigweed
- Sorgham
- Russian thistle
- Nightshade
- Lambsquarter
- Oat hay
- Corn



## Toxicity Facts

- Drought **increases** plant **toxicities**:
  - Plants growing under stress produce stronger toxins.
  - High-strength toxins require less energy to produce than lower-strength toxins.
- Animals allowed to graze in potato fields after a freeze or who feed on spoiled potatoes in the spring can be poisoned. The toxin **solanine** causes paralysis of the throat, constipation and even death. Besides potatoes, solanine is also found in night shade, tomatoes and **buffalobur** (a class A noxious weed). Children are also very susceptible to solanine poisoning.
- The curing process in hay does **not** dilute the **toxicity** in **most** plants.
- A plant may be more toxic during one part of the season than another.
- It is often the **dosage** that makes a particular plant poisonous.
- Poisonous plants often become more toxic during or after an extended drought, especially early in the growing season. Many poisonous plants mature early in the season (e.g., low larkspur, death camas, and locoweed). Poisonous plant infestations tend to increase after serious drought, but toxicity in plants can become more serious after a drought even when their numbers don't increase. After a dry year, there is less, if any, residual carry-over forage from the year before to buffer the toxins. The remaining forage can be more toxic. Dietary concentrations can reach toxic levels even when livestock do not increase their consumption of poisonous plants.

## REFERENCES:

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- Indiana Plants Poisonous to Livestock and Pets; [www.vet.purdue.edu](http://www.vet.purdue.edu)
- Cornell University Poisonous Plants Collection; [www.ansci.cornell.edu](http://www.ansci.cornell.edu)
- War on Weeds, Noxious Weeds found in Montana; [www.mtwow.org](http://www.mtwow.org)
- A Guide to Plants that are Poisonous to Horses and Livestock, Spokane County Noxious Weed Control Board.
- National Sustainable Agriculture Information Service; [www.attra.ncat.org](http://www.attra.ncat.org)
- Toxic plants, Control Them Before They Kill! Seminar on 4/19/06, by Patricia Talcott, DVM, PhD, Diplomate ABVT, WA Animal Disease Diagnostic Lab, WSU, and Analytical Sciences Laboratory, UI.
- Texas A&M University System, Billy E. Warrick, Extension Agronomist.
- U.S.D.A. Agricultural Research Service; [www.ars.gov](http://www.ars.gov)
- Veterinary Pharmacology and Toxicology—Poisonous Plants, Spring 1997; Patricia A. Talcott, MS DVM, Ph.D., DABVT, Veterinary Toxicologist.
- Protect Your Horses and Livestock from Toxic Plants; Washington State Noxious Weed Control Board.

**This handout does not contain a complete list of plants that are toxic to animals in Lincoln County. Please refer to the references listed above for more information.**

**Lincoln County Noxious Weed Control Board**  
**P.O. Box 241, Davenport, WA 99122**  
**Located at: 405 Ross St.**  
**509.725.3646**  
**Fax: 509.725.1332**  
**[www.co.lincoln.wa.us/weedboard](http://www.co.lincoln.wa.us/weedboard)**

